

# PATENT SPECIFICATION (11)

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## (54) IMPROVEMENTS IN OR RELATING TO WINDING UNITS OF TEXTILE MACHINES

(71) We, W. REINERS VERWALTUNGS GmbH, a German Body Corporate, of 143—145 Blumenberger Strasse, Munchengladbach, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to a textile machine winding unit with a winding roller consisting of a winding roller body which is secured on a central shaft and is provided with an annular drive lining of a high coefficient of friction in the sense that the lining effects frictional drive of the textile thread.

Particularly in the case of double-twist frames and rotor spinning frames, the winding rollers driving the cheeses to be wound by means of friction are equipped with drive linings of a high coefficient of friction. This special drive lining is to ensure a good entrainment of the cheese to be wound. Since this drive lining is mostly made of rubber-elastic material, it is usually mounted on the winding roller body. The annular drive lining is mostly substantially narrower than the width of the cone to be wound.

During winding, there arise difficulties at the two transition points between the winding roller body and the drive lining. Particularly when the drive linings are relatively thick, profiled and inserted in an annular groove of the winding roller body, there is a risk that the thread will be clamped into one of the two radially directed parting lines, thus causing a ball of yarn to be formed on the roller.

During the winding of conical cross-wound cheeses, a slip occurs at all the points of the winding roller except at the point where the actual drive takes place. This causes the drive lining to wear. The exchange of a worn drive lining is very difficult because it is necessary to stop the winding devices of many work stations, to withdraw the winding rollers from the central shaft and to refit them in the reverse order. The expenditure relating to fitting is considerable.

An object of the invention is to allow the exchange of a worn drive lining without the need to remove the winding roller body from the central shaft and/or without demounting the central shaft.

According to the invention we provide a textile machine winding unit comprising a central shaft, a winding roller body including a first part and a second part of which at least one is connected to said central shaft so as to be readily releasable, and an annular drive lining clamped in a positive manner between said first and second parts, said lining having at least one longitudinally extending division whereby on release of said at least one part the lining can be removed without removal of the winding roller body from the shaft and/or without demounting said shaft. The part or parts may be connected to the shaft by a screw connection and after the screw connection has been loosened, the lining may be exchangeable by the ends abutting along the division being prised apart. The division extends from one end of the lining to the other and is preferably radial.

As the winding roller body and the drive lining are positively clamped together, this results, in the assembled state, in a good protection being provided against any unintentional separation of the drive lining from the winding roller body.

The fitting and dismantling of the drive lining are greatly facilitated by constructing the winding roller body of two parts with at least one part connected to the central shaft in an easily detachable manner. After releasing the connection, the detachable part may, for example, be laterally displaced on the central shaft, causing the positive connection between the winding roller body and the drive lining to be released.

Advantageously, the winding roller body overlaps the axially opposed ends of the drive lining along the radially directed division. Such an overlapping causes the radially directed division to be covered, so that it is impossible for the thread to be wound to enter such division.

According to a further feature of the invention, it is particularly advantageous if the winding roller body and the drive lining comprise radial serrations engaging along the surfaces between the respective axially opposed ends of the lining and the parts of the roller body. With an appropriately fine division of the serrations, it is impossible, here too, for the thread to be wound to enter a gap between the winding roller body and the drive lining.

Some exemplified embodiments of the invention are shown in the drawings of Figures 1 to 4. The invention will be described and explained in more detail in the following text with reference to these exemplified embodiments.

Figure 1 shows a section through the winding roller of a winding unit. There can be seen a central shaft 11 which passes from winding unit of winding unit of the textile machine and is shown broken off. Secured on the central shaft 11 is the winding roller body 12 which consists of the two parts 13 and 14. Part 13 is connected to the central shaft 11 by means of a screw 15 and part 14 is connected thereto by means of a screw 16. An annular drive lining 17 is arranged in recesses of the two parts of the winding roller body 12. The drive lining 17 consists of a rubber-elastic material and is divided longitudinally at 18 to facilitate dismantling. The shoulders formed by the recesses in the parts 13, 14 are provided with annular recesses 19, 20 which receive the ends of the drive lining 17. Overlapping of the axially opposed ends of the lining is effected by the rims 21 and 22 of the parts 13 and 14 respectively formed by said recesses 19, 20.

In order to effect the exchange of the drive lining 17, either part 13 or part 14 is released from the central shaft 11 and is shifted in the direction of the shaft axis 23. By this means, the drive lining 17 is released from the recesses 19, 20. It can now be prised open from the division and be withdrawn. The fitting of a new drive lining is effected in the reverse order.

The drawing of Figure 2 shows an elevation of a different winding roller, consisting of the winding roller body 24 and the drive lining 25, and the drawing of Figure 3 shows a section therethrough. Here, too, the winding roller body is constructed in two parts and consists of the parts 26 and 27. Part 26 is connected to a central shaft 30 by means of a screw 28 and part 27 is connected thereto by means of a screw 29. Along the radially directed parting lines 31, 32, the winding roller body and the drive lining comprise radial serrations 33, 34. The drive lining 25 has two opposed divisions, of which the division 35 is visible in Figure 2. Accordingly,

the drive lining 25 is in two parts and consists of the parts 36 and 37. The parts are made by the pressing method from a pressed material having a high coefficient of friction. The two parts 26 and 27 of the winding roller body 24 are made by the pressure die-casting method and consist of a metal alloy.

The installation and dismantling of a defective drive lining is effected in the manner described with respect to Figure 1 with the difference that in this case there is no need for the two parts of the drive lining to be prised open.

The arrangement of the winding roller 24 in the winding unit 38 is diagrammatically shown in Figure 4. One discerns in Figure 4 the central shaft 30, the winding roller 24, a cross-wound cheese 39 which rolls on the winding roller 24 and is driven by the winding roller, a reciprocating thread guide 40, the thread 41 to be wound and a thread deflection point 42.

#### WHAT WE CLAIM IS:—

1. A textile machine winding unit comprising a central shaft, a winding roller body including a first part and a second part of which at least one is connected to said central shaft so as to be readily releasable, and an annular drive lining clamped in a positive manner between said first and second parts, said lining having at least one longitudinally extending division whereby on release of said at least one part the lining can be removed without removal of the winding roller body from the shaft and/or without demounting said shaft.

2. A winding roller body as claimed in claim 1, wherein the lining has two radial divisions.

3. A winding roller body as claimed in claim 2, wherein the two divisions are diametrically opposed.

4. A winding unit as claimed in claim 1, 2 or 3, wherein the axially opposed ends of the lining are overlapped by the two parts of the body.

5. A winding roller body as claimed in claim 1, 2 or 2, wherein the axially opposed ends of the lining each have radial serrations engaged respectively by radial serrations provided on each of the two parts of the body.

6. A textile winding machine unit substantially as described herein with reference to and as illustrated by Figure 1 or Figure 2, 3 and 4 of the accompanying drawings.

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COMPLETE SPECIFICATION

2 SHEETS

*This drawing is a reproduction of  
the Original on a reduced scale*

Sheet 1

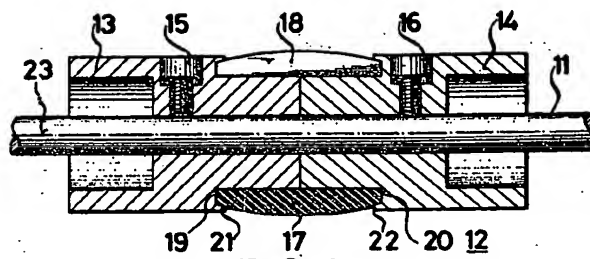


FIG. 1

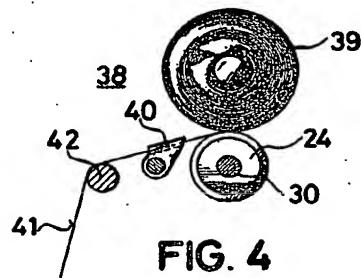


FIG. 4

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COMPLETE SPECIFICATION

2 SHEETS

*This drawing is a reproduction of  
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Sheet 2*

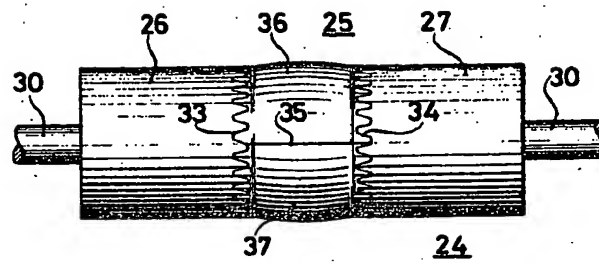


FIG. 2

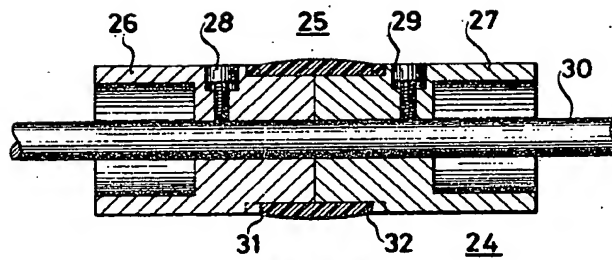


FIG. 3